Are You Prepared?

AT present the attention of patriotic citizens is turned toward National Defense and, "V" for victory is in the air.

In nearly every defense problem the movement of persons and goods, of troops and matériel over highways is ever present. This is a job demanding the best that traffic engineering and management can offer.

Every community is faced with the latent problem of emergency action in these days of blitzkrieg and luftwaffe. There is no longer a clear line of demarcation between the area of combat and the zone of the interior. Every area is potentially subject to bombing and blitzing.

Such conditions demand a plan of traffic management suited to the emergency produced by aerial bombing. A general fire spread by incendiary bombing is a particularly important problem in the average American community with its frame construction.

How many plans for traffic control do you have, Mr. Traffic Engineer, which are designed to meet war emergencies? What is your traffic plan for the heaviest intersection or that key bridge in your community were it blown up tomorrow? How would you operate traffic if the power house supplying current were to be put out of commission? Suppose a general blackout was ordered. Would you be a help or a hindrance? If this shell loading plant or that key industry should be sabotaged, how would you move fire fighting equipment, detour the curious, and get the injured to the hospital? Suppose a general evacuation was ordered. What are your traffic plans? Do you *have* a series of specific plans fitted to probable catastrophies and applicable immediately?

The problem is truly nebulous and new, but it is one demanding forethought. The more traffic plans you have the greater service you can render your community and the better your colleagues will be prepared.

Theodore M. Matson

Mem. Board of Direction

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THE PROBLEM OF PARKING FACILITIES

By THOMAS H. MACDONALD

TODAY, there is a need for off-street terminals in conjunction with the urban highway system. Municipal interest in some cases seems to be limited to the apprehension of illegal parkers and the revenue possibilities of parking meters, while in others the inability to cope with parking difficulties has created the attitude that effective measures are no longer possible.

Parking is not an isolated issue, but an intimate part of highway transportation. Failure of the street itself to provide complete service in terms of adequate parking as well as traffic movement has not altered this fact, but has merely necessitated the dedication of additional facilities off the street. It is also significant that transportation is not an end in itself and cannot be viewed completely without reference to the broader problems and policies of the whole city in terms of land use, urban finance, and the pattern of municipal development.

Off-street parking falls into three general categories: private facilities, privately operated public facilities, and public facilities. Today, the second category, the privately operated public facility, is providing the major parking capacity in our downtown areas. Payment for these commercial facilities is assessed entirely against the motorist through direct cash charges except where payments are made by stores to provide their customers a period of free parking. In the case of private accommodations, there is no universal means of exacting payment. Finally, parking may be a municipal operation with facilities furnished free to the motorist or at low rates made possible through sharing of the bill by property owners or general taxpayers. This variety of responsibilities established in paying the parking bill is not unlike that encountered in providing the streets themselves.

Under municipal operation, parking may be provided on land which has long been in the possession of the city, involving no cash outlay. In the event that a municipality should acquire land directly for parking facilities, however, total costs incurred would still be lower than under private ownership.

Cost figures for merchant-owned parking facilities are in general much lower than those for privately owned facilities, not only because of the possibility of providing them in conjunction with existing property and business organization, but because a direct return on the investment may be foregone in view of the profits from increased sales.

The solution of the parking problem involves not merely the provision of space, but of space properly located and attractively priced. Current efforts by private enterprise often fail to comply with these specifications.

Parking Lots

Privately operated public parking lots are now the most prevalent type of off-street parking accommodations. Over-crowded, over-priced, and ill-designed, these unattractive properties resemble more closely the scars of mass bombings than utilities performing a public service. Among the specific charges which have been brought against them are the following:

Location of the parking lot is generally dependent upon the location of vacant property rather than studies of traffic origin and destination, the effects of terminal location upon street use, and the relation of these factors to the general urban problem.

The size of lots is likewise determined by the fortuitous circumstances governing their location, in spite of

the fact that demand conditions as well as the relation of terminal size to street congestion should be the determining factors.

Land for parking is furnished on a temporary speculative basis with the intention of later conversion to more profitable use.

The temporary nature of parking lots makes improvement of the property uneconomical, with the result that the benefit of parking facilities in terms of transportation service may be offset by the depressing effect of unsightly property upon surrounding land values.

The whole cost of parking is charged to the motorist in spite of the fact that the accrual of benefits to merchants, adjacent property and the city may suggest a more equitable cost allocation.

Rates must be charged to cover all costs in connection with the operation of the lot, whereas the broad interests involved in the availability of parking facilities suggest that these properties, like the streets themselves, should be operated on a noncommercial basis in terms of profit to the community as a whole.

Because of the compulsion to produce an optimum return, parking lot charges, particularly for short-time parking, are often considered unreasonable, and the desire to operate at capacity often results in irresponsible handling of vehicles, illegal use of surrounding streets, crowding and inconvenience to the motorist.

Garages

Many of the criticisms of private operation cited in connection with the parking lot are likewise applicable to the garage, but the latter introduces additional factors:

The early establishment of many garages has frequently resulted in their being poorly located with respect to current motor-vehicle terminal needs.

Garages were first built when there was no lack of street space available for parking, but when enclosed parking was a luxury service to protect the vehicle from the elements. These buildings were accordingly of ornate design, hence high cost, in keeping with the type of patronage. Today, however, technical improvements in the motor vehicle have eliminated the need for escaping the weather, and the lack of street space has made off-street facilities a necessity rather than a luxury.

The extra cost of pretentious garage structures, their inefficient use of space and the high labor costs required in operating them are reflected in rates which most motorists are unwilling or unable to pay.

Garage design has undergone very considerable revision in recent years, however, and the new open-wall garage is now a demonstrated possibility for the future. This parking structure embodies the old garage principle of multiple-level parking, but is designed specifically for storing cars at low cost by incorporating certain construction economies. The omission of walls makes ventilation and sprinkler equipment unnecesary, and ramps are provided for quick and easy movement of vehicles between floors. Low-studded construction and all possible utilization of space, including the roof, are also distinguishing characteristics of the open ramp structure. The combined effect of low first cost and a minimum of operating expense results in total costs from one-third to one-half those of the old enclosed garage.

In the past several years there has been a considerable extension of shopper garages and lots provided in conjunction with retail stores in the downtown area, both individual and cooperative. Indeed, the downtown merchant has generally been far more alert to the consequences of inadequate

access to the city than has the city itself.

On the other hand, an association of merchants formed to provide joint parking accommodations has this defect: that after costs have been lowered beyond a certain point there may be a desire on the part of member stores to maintain their competitive advantage by restricting entrance into the organization. Thus a serious obstable is placed in the way of eventually extending the benefits of low-cost parking to the whole city. The fact remains, moreover, that the short-time shopper does not constitute the whole parking problem, nor can the premise be accepted that downtown merchants should shoulder the parking burden alone, while the city, which is largely dependent upon the success of business, does nothing.

Failure of private enterprise to produce a satisfactory solution to the parking problem has led in a number of cities to the adoption of municipally owned and operated facilities as a public responsibility.

Land used for municipal parking facilities is often already available to the city, through tax delinquencies, by gift, by the removal of public buildings, or where remnants had been left from some previous public project. The demolition of public buildings by W.P.A. or of private dwellings in conjunction with slum clearance projects offers the city an opportunity to obtain desirable sites for municipal parking facilities. When land is obtained by any of these devices, the problem of financing parking is generally negligible. In many instances, however, the city does not own satisfactory sites making it necessary to purchase, condemn or lease. The problem of financing may then be solved in a number of ways, including general obligation or public revenue bonds, special assessments, or general fund appropriations of motor vehicle contributions.

Under municipal operation there are two unexplored alternatives which appear to have merit. One is the issuance of identification plates for a designated annual sum, which would admit the motorist to any municipal lot during the year. Proceeds from the sale of these plates would be used to finance such properties. The second suggested method would be to amend State laws for the distribution of motor-vehicle revenues to permit cities to use their allotments for the purpose of providing off-street parking. In other words, the meaning of the term "highway purposes" would be extended to include terminal facilities.

Many persons have expressed the belief that municipal operation is to be avoided because the city should not compete with private garages and parking lots. The city already competes with private business when it permits free parking on the streets, or when parking meters take the cream of the traffic—the short-time parker—away from private off-street facilities. This argument against public ownership is hardly important, since the business of parking cars on lots does not involve a long-term investment or a permanent enterprise. Even in the case of garages, which involve a more permanent investment, the fact that such operations have been generally unprofitable for many years and that most garages are now being rendered obsolete by new designs appear to minimize the effect of a shift to municipal parking operation. The real issue is simply whether public operation makes possible a better and cheaper service, and judging from the results of private efforts, it appears that such would almost have to be the case.

Municipal operation of off-street terminals is not the only solution to parking troubles. In spite of the phe-

nomenal growth in motor vehicle traffic during the past two decades, transit facilities still provide the major transportation capacity in most large cities. It is possible that, if the equipment and service supplied by these mass transportation facilities were improved, they would be patronized by many who now use their own automobiles. The result of thus attracting a larger percentage of commuters to mass transportation media might be highly salutary to the downtown district, not only because it would lessen the required amount of parking space, but because street capacity would thereby be enhanced.

Because of the realization that considerable time may elapse before the city acts to make possible attractive mass transportation and adequate municipal parking facilities, certain interim aids are suggested which might afford a measure of immediate relief. Municipal governments might subsidize private operation of parking lots by lowering the assessment of land so used on the theory that parking facilities constitute a public utility. Costs might also be lowered by tax abatement and the advantage passed on to the motorist by municipal regulation of parking rates. Reduction of parking costs effected by such subsidies would be justified on the grounds that adequate parking at low rates would improve accessibility to the downtown district and thereby bolster surrounding land values. Cities might also bring about an improvement in private efforts by furnishing adequate street approaches to parking lots, by enforcing existing curb parking ordinances, by leasing public land to private operators and by exacting strict requirements concerning the appearance of lots, the handling of cars, financial responsibility, and the use of abutting streets.

Among the steps which a municipality might take to provide for better parking conditions in the future are two which suggest immediate action. The first concerns establishment of an adequate parking plan, which determines the actual and potential demand for parking facilities generated by varying urban land uses. Data are obtained by means of carefully devised questionnaires directed to the parking habits of the motorist. It is this type of transportation study rather than the meaningless enumeration of motor-vehicle traffic which must indicate proper plans for reducing urban congestion.

A second step having long-range implications is the enactment of modern building codes and zoning ordinances. The American Society of Planning Officials recently issued a selected list of zoning ordinances of this nature in 34 cities.

It is suggested that Federal assistance might be offered in the planning of parking facilities in connection with the highway program, and that actual sites might be made available through building demolitions by the Work Projects Administration. Financial aid in the provision of the new facilities or loans for land acquisitions are also possibilities for the future. At the same time there appears to be no logical objection to the broadening of the legal interpretation of highway service to permit the cities to use their allotments of State motor-vehicle tax revenues to finance off-street parking facilities. Intelligent surveys and enabling legislation, however, appear to be the most essential immediate steps, so that eventual return to a peacetime economy may find in readiness bold plans for a large-scale program of public works designed to rescue the city from its present plight.

Condensed from a Report of the Dept. of Finance, Highway Research Board, Thomas H. MacDonald, chairman; published in Public Roads, Vol. 22:4, July 1941 and prepared by Wilfred Owen.

MUNICIPAL INDIFFERENCE IN MAINTAINING TRAFFIC DEVICES

By EDGAR F. COPELL

ONE would be hard pressed to mention a product of man's handicraft that does not require at least occasional attention if it is to endure and fittingly serve the purpose for which it was originated. It matters little whether the product be a house, an automobile or even a suit of clothes. Most men in fact take keen delight in keeping their houses trim, their automobiles in good mechanical order and their clothes presentable.

Yet, it often happens that some who are most meticulous concerning the upkeep of personal possessions are grossly negligent in providing proper maintenance of public property entrusted to their care.

Perhaps no more striking instance of this is to be found than that of traffic devices erected by some municipalities. In every case these devices are erected as a result of a definite need and not infrequently at no small cost to the public. In order to illustrate this point we need consider only a few of these devices.

Traffic control signals are generally the device of last resort. In many instances their use is proceeded by the erection of warning "crossroad" signs or stop signs. The cost of signal installation varies from $1200 to $2000. It is reasonable to assume that such costly devices would receive excellent care. Not so in some localities. For a time the installations are well maintained, but gradually they become neglected. The signal posts are rarely if ever painted, with the result that they commence to corrode and take on a shabby appearance. But this is trivial. The real neglect enters when the instrument that is intended to safeguard is permitted to become a hazard by failure to guard against dead bulbs. Such a condition occasions confusion and, what is more, invites accidents.

Like all mechanisms, traffic signals are bound to get out of kilter. The most common disarrangement of these appears in the timer. But many officials do not seem to appreciate the need that exists for occasionally resetting this part of the apparatus. Consequently congestion and delay ensue. Not infrequently some operators, irked at prolonged delay, will violate signals and occasion accidents. This disobedience would not result were the signals regularly inspected.

The devices that often receive the least attention are parking signs, directional signs, warning signs and stop signs. It would almost seem that some officials consider their signs to be indestructible, so little attention is paid to them after being put into posisition.

It is not uncommon to come upon a restrictive parking sign that would require a powerful glass to ascertain the legend; yet motorists are supposed to conform to such a sign. The iniquity of this requirement completely escapes many officials.

Motorists are sometimes greatly incommoded through the failure of some municipalities to provide legible directional signs. I could without hesitation mention a dozen towns where the brownish tinge of many directional signs makes deciphering the legend impossible.

The form of neglect that permits dead reflecting units to remain in a sign can reach serious proportions.

It is not an overstatement to say that the majority of night drivers govern their operation by the warning signs that appear at the sides of the roadway. It is essential to know that

one is approaching a bad curve, a well-traveled intersecting way, or that pedestrians may be expected to cross the road at certain points. Yet this opportunity is greatly lessened, if not entirely removed, when gaping holes appear where reflecting buttons should be.

Consider, too, the danger that confronts an unsuspecting motorist who arrives at an intersection, where because of the indifference of someone, the stop sign is reposing at the side of the road or in an adjacent field. Ignorant of the hazard the operator proceeds into the intersection only to find himself in imminent danger.

None of the conditions cited is imaginary. Each is actual. It is about time that this dreadful laxity of some town officials cease. It cannot be argued that proper supervision entails too much expense. Periodic inspection of timers and changing of bulbs require no great outlay. A sign can be refinished for about seventy-five cents. The expense incurred in replacing buttons, including labor, will not exceed seven cents for each unit. Municipal officials should awaken from their apathetic state and realize the duty incumbent upon them to maintain properly public traffic devices.

An original article by E. F. Copell (Mem. I.T.E.), Traffic Engineer, Dept. of Public Works, Massachusetts.

IMPROVING TRAFFIC SIGN PRACTICES

By WILBUR S. SMITH

THE Committee on Construction and Engineering of the First National Conference on Street and Highway Safety said in 1924, "At present there is a wide variety of signs for the same purpose, both those placed by the authorities of different states and those placed officially by motor clubs or advertisers. Standardization of signs cannot, therefore, be accomplished in a day". The Committee suggested that standardization might best be accomplished by having the U. S. Public Roads Administration erect signs on all Federal-aid roads, and by state authorities insisting that the same types be used by county highway authorities.

Another interesting portion of the report was "All signs should be simple, with the least amount of wording necessary to make them readily understood, depending mainly on distinctive shapes, symbols and colors."

The first definite step towards standardization of signs was the issuance of a Manual by the American Association of State Highway Officials in 1927. This Manual covered only a limited number of signs and no other traffic control devices. Since it was limited to rural highways, the American Engineering Council developed, in the same year, a similar book for urban use.

The Joint Committee on Uniform Traffic Control Devices brought together the two Manuals in 1935 with changes, revisions and additions, as the "Manual on Uniform Traffic Control Devices for Streets and Highways". Except for minor revisions in 1939, it has been recognized as the standard since it was published.

A survey of all the states, conducted last year by Mr. J. O. Martineau, Assistant Chief Engineer, Department of Roads, Quebec, Canada, June, 1940, indicated that:

16 states follow the Uniform Manual in detail

21 states follow the Uniform Manual with *slight* exceptions and supplements

9 states follow the Uniform Manual with rather wide deviations

2 states have not adopted the Uniform Manual.

These figures show clearly the willingness of states to fall in line with reasonable standards. Mexico and four Canadian Provinces now use our standards as a basis for roadway signing. They have, at least in part, also been adopted in Panama, the Canal Zone, Chile and Argentina.

During the past 15 or 16 years vast improvements in highway transportation have increased the importance of the sign problem. High speeds and heavy volumes of widely varying types of vehicles stress the need for adequate visibility and legibility. Adequate route numbering alone is not sufficient to guide and direct the average driver safely.

Most sign problems of today in rural areas are the result of high speeds. In cities the problems accrue from a congestion of advertising signs and an increased vehicular volume which allows less time for activities other than strict manipulation of the vehicles. Although it is practical to eliminate the need for warning signs through proper streets and highway design, this is not economically practicable. The problem is to reduce the likelihood of *unexpected* and *critical* decisions by drivers.

City versus State Control: One of the earliest recommendations was that uniformity could best be achieved by establishing centralized control, Granted, but money, politics, etc., make this difficult. The states have already adopted the same basic standards, but there has been a lack of cooperation by political subdivisions of states. Some states, notably Massachusetts and Pennsylvania, have achieved a general uniformity by legislation requiring the cities and counties to use standard signs. There is a marked trend to have highway departments maintain all city streets used as state highways. With such control usually goes the authority to regular traffic or to have a part in its regulation. This might provide the key to uniform signs on all state and federal highways.

Over Signing: Most streets and highways are oversigned. A total of 560 signs was recently counted on a 38 mile section of U. S. Route 1 in New England. This average of 15 signs to the mile included route markers, destination signs, regulatory signs, and others, but no STOP signs on intersecting roads nor more than one sign on a post, were counted. Add to this several hundred advertising signs and even the most conscientious and law-abiding motorist is discouraged. Advertising signs ought to be removed, and highway signs limited to a minimum number of useful guides and *only* necessary regulations.

Flexibility of Existing Standards: One fault with the existing Manual on Uniform Traffic Control Devices is that its limits on sign sizes are not rigid enough. Also, the wording is such in some cases that it has resulted in wide interpretations.

Oversized Signs: Recently many oversized signs have made their appearance. Both the standard signs and the non-standard signs have been "blown-up" and altered as to colors, shape, message and illumination. Exceptionally favorable results have been reported in some instances. Higher speeds, better roads, and other changes affecting motor vehicle travel make large sign copy necessary. A careful check-up should be made, standards

fixed, and applications placed on a uniform and factual basis. Standards of measurement of the desirable signs must be developed. Can the effectiveness of small signs be maintained if some are enlarged? If all regulatory signs were enlarged, would the net effectiveness be any greater than that now achieved? Will large signs create misjudgments of distances by drivers? These are questions to be answered.

Shapes: The intention of the Uniform Manual was to have the shape of signs convey important basic meanings. No one feature of the standards has been more violated. The idea that the average driver can interpret the meaning of different shapes is vanishing. Maybe we would do well to limit the shapes to one, or not more than two, for highway signs and to legislate against the use of these shapes for other purposes such as advertising. People just cannot be educated to too many inferred or hidden meanings.

Sizes, Colors, and Letter Spacings Most Important: Although it is agreed that the message to be purveyed by shape is limited, the question arises as to whether or not the same result follows with sizes, colors and certain design details. Since these are elements that may be directly related to ease of interpretation, legibility at high speeds, contrasts, etc., it is safe to say that they are important and must be carefully investigated before being advocated. Compulsory education as to the meaning of these elements of sign design is not necessary as they will be unconsciously effective.

Destination Signs Less Uniform: Destination signs are less uniform than caution and warning signs because they are so readily recognized as inadequate under conditions of increasing speed and density of traffic. Every state clamors for improvement. Should motorists have to stop on sixty mile per hour highways to read destination signs clustered on a single post with messages in 2″ to 4″ letters, remembering that in many instances the stop must be on the pavement because the signs cannot be read from positions on the shoulders? Why use multiple signs and then erect them parallel to the traffic stream?

Large Financial Investments in Signs: It must be remembered that governments and manufacturers often have large investments in dies, materials, sign stocks, etc., so that it is economically unsound to make frequent changes in standards that necessitate junking good equipment and materials. It cannot be reasoned that observance can be expected if standards are literally changed overnight.

The following questions illustrate the extent and complexity of the subject:

Why are not alternate routes given a common meaning with reference to by-passing business areas?

Why do some states use black background with white messages or symbols?

Should superhighways be especially signed or should the basic standards for all roads be made to meet the needs of the best roads?

Should unenforced and unreasonable signs, which create a general disregard for all signs, be made to "mean what they say", or if not enforced, be removed?

What criteria are available indicating when to install a STOP sign? Are erection standards uniform? Is a red signal essential?

Can roadway delineators be justified along continuous sections of roadway? Has it been proven advisable to use them at points of particular hazard?

Should markings on road surfaces

replace signs or merely supplement them?

Are we ready to adopt overhead signs as standard?

Are portable signs more effective or just a nuisance?

How well have symbols been accepted? Are signs with just the word "slow" more beneficial?

Would individual state manuals be as necessary if the Uniform Standards were more generally applicable?

Should duplicate signs be installed on the medial strip of divided highways? Probably the simplest solution on multilane highways would be overhead signs?

A great majority of the states, counties, and cities have made radical departures from the National Standards, and others are fast laying plans to do so because present standards are *outmoded* and have been made inadequate by present speeds, confusions and densities.

Regardless of how good existing standards and codes might have been the fact remains that uncontrolled deviations from the standards introduce an ill that is as bad as retention of the outmoded standard. It is strongly recommended and urged that immediate steps be taken to bring the inadequacy of existing sign standards in line with the needs of modern, heavy, high speed traffic through engineering analysis. In view of the preparedness measures and the overloading of highways in many sections by defense movements, it has been suggested that the revisions should be undertaken by sections so that those signs which are most needed could be passed upon and placed in use before the entire Manual is completed.

Research Necessary: There is little merit in revising the Sign Manual without proper research. Items in need of study are:

High speeds are forcing a re-examination of legibility and visibility standards especially as regards signs at night, and attraction value needs study in urban areas where high volumes are encountered.

The design of directional and destination signs and their proper location has received considerable study, but treatments for standard intersections cannot be agreed upon, much less those for complicated intersections, circles, grade separations, bridge approaches, etc.

The proper location for signs is in need of study. Just as speed has affected sizes, so it has changed the spacing and legibility requirements. Target value in relation to letter sizes, sign shapes, and colors needs further study.

Work should be done on determining the maximum length for word messages and the extent to which symbols can be utilized.

Highway signs must be predominant if they are to demand proper respect. A study and recommendations that would enable states and communities to control the placement of advertising signs through zoning and other means would be very beneficial.

Condensed from an original paper presented by Wilbur S. Smith (Mem. I.T.E.), Traffic Engineer, South Carolina State Highway Dept., Columbia, S. C., at the Greater New York Safety Conference, N.Y.C., April 1941.

AUTOMOTIVE ENGINEERING FOR SAFETY

By LIGHT B. YOST

SAFE and efficient highway transportation is a resultant of three factors—the road, the driver and the vehicle, and it is the purpose of this article to outline the contribution that one research group of motor car engineers is making toward safer and more comfortable operation of the vehicle.

The public will unhesitatingly agree that the automobile is safer today than it was ten years ago. It is aware of such features as four-wheel brakes, safety glass and all steel bodies but such features as uniform operating characteristics, steering stability, maneuverability and the many other qualities that make the modern automobile a dependable, efficient and safe machine are not as well known.

There is a constant effort by engineers of the industry to judge mechanical behavior and operation from a safety viewpoint and then incorporate into their design the knowledge thus obtained. Representative of what the automotive industry is doing in the field of motor vehicle research is th. Proving Ground of the General Motors Corporation.

The Proving Ground was established in 1924 to conduct extensive testing and research essential for constructive progress in motor car operation and design. Located forty miles northwest of Detroit, Michigan, the Proving Ground covers an area of almost 1,300 acres, employs 175 men and provides more than 25 miles of all types of roads for vehicle testing. It has living quarters, a cafeteria, an official weather bureau station and more than a dozen buildings, including shops, laboratories and garages. In the 16 years the Proving Ground has been in operation more than 80,000,000 miles have been covered by vehicles undergoing tests.

The principle function of this outdoor laboratory is to conduct experimental work on all new car models including impartial tests of all cars of other companies purchased on the open market from independent dealers to obtain products representative of those purchased by the retail consumer.

Generally speaking, it may be said that anything affecting the actual operation of a motor vehicle is inherently a factor relating to safety. The rapid growth of the automobile industry over a relatively short span of years and the accelerated progress in engineering design have created a serious problem for the engineers responsible for the performance of the final product. Certain standards had been established and proven for engineering practices on the drawing board, but the ultimate criterion is still "the road test."

How the car operates and handles under all driving conditions is the all-important check that must determine its suitability as an efficient and safe medium of transportation. The only logical procedure is to carry out tests under actual road and driving conditions that are as carefully controlled as laboratory tests. Opinions of engineers as observers cannot be depended upon to establish standards. Instruments are the only means for obtaining information that will reduce to a minimum the variables of individuals.

In the beginning, there were no suit-

able testing instruments. Consequently, the automotive industry was compelled to devise and design the needed equipment.

Of interest to the traffic engineer is a type of brake testing equipment that includes a recording decelerometer. Brakes are features in every discussion on vehicle safety, but there is a wide variance between the layman's interpretation of good braking and that of the engineer. The motorist and the safety-lane inspector are both interested in the number of feet required to stop from a given speed. The engineer, however, must also keep in mind the overall safety of the vehicle. Rate of stopping in terms of pedal pressure introduces a factor not considered by the layman.

Although it seems that the principle function of brakes is to stop a car as quickly as possible, brakes can easily be too severe for safety. Excited drivers have a tendency to apply excessive energy to their braking efforts, and others too light a pedal pressure; either may lock the wheels resulting in more damage to the unsuspecting car occupants than might have been caused by collision. The design engineer must, therefore, develop a brake, based on test, which will give neither too light nor too heavy a pedal pressure in relation to the desired deceleration providing the maximum of safety.

The equipment designed by General Motors' Proving Ground Engineers gives the necessary information to plot accurate curves of deceleration rate in terms of applied pedal pressure. Maximum and minimum curves have been established from a comfort and safety standpoint, and these criteria are used as a standard of comparison for the vehicle in question.

The instrument developed is a combination of recording decelerometer and brake pedal actuator. The decelerometer records accurately the rate at which the vehicle is slowing down in relation to time. This record is continuous. The brake pedal actuating device assures a synchronized and uniform rate of increased pedal pressure that may be accurately controlled and duplicated for any series or combination of conditions desired. The variability of driver operation of the brake pedal is absent in these tests. Significant of the value and need for such an instrument is the fact that sixteen have been made available to other manufacturing and testing organizations as a cooperative gesture in the interests of better brake design.

Roadability is another factor that has a very definite relationship to safe operation. It had been found that while paper calculations made by designing and testing engineers indicated that a vehicle would steer and behave in a particular manner while operating, under actual road tests certain characteristics appeared that could not be accounted for in the laboratory. Some method had to be devised to study this behavior under the actual conditions that created it. Proving Ground engineers designed equipment that revealed a completely new approach to steering geometry and steering characteristics. It consisted of a high-speed motion picture camera mounted on the test vehicle and utilized in conjunction with a paved road area painted with two-foot checkerboard squares. Moving pictures were taken by the camera so that each frame of the film recorded accurately the position of the vehicle in relation to the grid pattern. The film was then projected on a miniature flat surface having a grid pattern identical except for size to the actual test roadway checkerboard pattern. This flat surface was adjustable in three planes and in the two plane coordinates. Thus, since the projector occupied relatively the same position as the test vehicle

and camera, the instantaneous position throughout the run of the vehicle could be duplicated in the laboratory, with facilities for accurately measuring the degree of variation in relation to the test surface. As a result, the deviation of the vehicle from a normal path due to cross winds, wandering or drift could be easily measured, and the characteristics under operation be studied. Data obtained enabled the engineers to make accurate comparisons of behavior created by controllable conditions with resultant improvement in design.

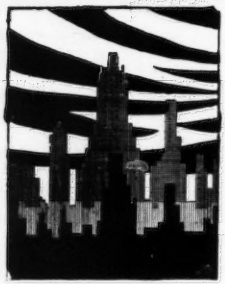
The "skid pad" at the Proving Ground is another means affording engineers factual information on behavior and steering characteristics. Here on a concrete surfaced area, circular in shape and over two hundred feet in diameter, cars can be driven at varying speeds, and any degree of horizontal curvature of a roadway can be simulated. Accurate records of the vehicle's behavior are compiled which provide invaluable data affecting the vehicle's "roadability".

And discussion on automotive safety should include a consideration of acceleration as a safety factor. In the mind of the motorist acceleration and speed are often confused. We must, however, keep its function and definition in mind when discussing its true value. In the language of the engineer, acceleration is the rate of change in increased velocity.

Occasionally it is necessary to increase the *velocity* of a motor car very rapidly to avoid hazardous situations. This element of maneuverability is very essential for the safe operation of the automobile. Engineers feel acceleration is as important a safety factor as brakes. When one considers acceleration as just the reverse of deceleration or slowing down, it is easy to see that it may be used as often as brakes to assure flexibility in maneuvering the vehicle, especially in traffic. The acceleration of an automobile is greater in the lower gear ratios than it is in those which are higher. This explains why the expert driver in passing vehicles at speeds *up to* 30 m.p.h. where physical conditions or approaching cars introduce a hazard, will shift from high gear into second. He is thus able to take advantage of the increased acceleration available and to get around another vehicle in the shortest possible time, thereby decreasing the hazard.

The foregoing, although not a complete discussion of the Proving Ground's extensive research efforts will serve to acquaint the reader with the important place that motor vehicle safety occupies in its engineering program. These testing techniques illustrate how closely vehicle safety is integrated with motor car design, production and testing. Mechanical innovations now on the drawing boards and destined to be a part of the vehicles of tomorrow must be evaluated in the light of safe design standards. Thus each succeeding year sees the automotive industry striving to provide the public with vehicles which are as efficient, as comfortable and above all as safe as engineering skill can make possible.

An original article by Light B. Yost (Affil. I.T.E.), Department of Public Relations, General Motors Corporation, Detroit, Michigan.



Stop, Look and Listen

President Hawley S. Simpson announces the resignation of Lawrence B. Tipton (Affil. I.T.E.) who during the past year served as Editor of TRAFFIC ENGINEERING. Editor Tipton, who has given liberally of his time to this magazine, is unable to continue in this capacity due to the increase in duties arising from his recent appointment by Secretary of Labor Perkins as Safety Training and Field Service Supervisor for the National Committee for the Conservation of Manpower in Defense Industries. Mr. Tipton will have the responsibility for the organization and development of programs for Defense Safety Engineering training at college level in principal industrial centers. Intensive courses in safety engineering, industrial hygiene, occupational disease and industrial accident prevention will be offered.

The President, Officers and Board of Direction congratulate Editor Tipton on the outstanding work he has done in making TRAFFIC ENGINEERING one of the foremost professional journals of the nation. Our best wishes go with him for his new position!

CONGRATULATIONS!

Eugene A. Barton, (Jun. I.T.E.), former Traffic Engineer of The National Conservation Bureau, has become affiliated with The Glenn L. Martin Company of Baltimore, Maryland, as a Traffic Engineer.

Harry Howard, Jr. (Jun. I.T.E.), formerly connected with the Traffic Engineering division of the State Highway Department of South Carolina, has become affiliated with The National Conservation Bureau, New York City. Mr. Howard is serving in the capacity as Traffic Engineer, taking over the duties formerly held by Eugene A. Barton.

WASHINGTON, D. C., HIGHWAY REPORT

Captain H. C. Whitehurst, District of Columbia Director of Highways, has prepared a Report on traffic conditions and needed improvements for the District of Columbia, which contains conclusions of interest to traffic engineers.

This Report was based on facts gathered by the District of Columbia Highway Planning and Parking Surveys conducted in cooperation with the D. C. Department of Vehicles and Traffic and the U. S. Public Roads Administration. Immediate and long-

DEFENSE PRODUCTION

Is Increasing the Growth of Hundreds of American Cities

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» New Housing Areas are being developed.

» New Streets are being opened.

Let us quote you on an economical type of STREET NAME PLATE for identifying your streets

The MIRO-FLEX COMPANY

Traffic Signs for Every Purpose

1824 E. SECOND STREET WICHITA, KANSAS

range costs and methods of financing are included.

The chapter on terminal facilities for motor vehicles is particularly outstanding for the interesting facts shown and for the conclusions drawn. In brief this chapter states that private enterprise and the government alike have not given the parking problem the attention it warrants, that building and zoning regulations could be amended to increase future parking facilities; that merchants can supply at a profit to themselves parking facilities, that curb space should be available only for customers and transients, that public transportation should be improved and that the District of Columbia should through proper and economic channels provide off-street parking facilities.

The D. C. Highway Report chapter on Parking could duplicate the title of the New England Regional Planning Report of some months ago: "Too Many Cars—Too Little Space."

One recommendation that parking areas be established on the periphery of the downtown section with shuttle busses into the center of the city raised the question of the establishment of subsidiary business districts at these parking areas to the detriment of downtown business. (Editor's note. Facts seem to indicate that wherever "outlying" parking lots have been established with bus service to the center, that motorists rarely used the lots; however, the D. C. scheme apparently proposes lots much nearer the center and would not involve decentralization as commonly thought of but rather spreads business into the so-called blighted fringe around the business district.)

REFLECTORIZED SIGNS

It is a well-known fact that improved road conditions have increased the speed at which motor cars travel and have also increased night driving to a very considerable extent.

Traffic hazards are naturally increased, resulting in unnecessary accidents.

There is no sure way of controlling driving habits, but there is a way of helping to prevent accidents by making all road signs, primary and secondary markings, readable twenty-four hours a day by reflectorizing them with Scotchlite, the new, brilliant material manufactured expressly for this purpose.

Scotchlite gives traffic signs full target value, visibility and readability without glare or distortion. Designed to provide daytime appearance at night, Scotchlite does just that.

Made by a scientifically controlled process, every inch of Scotchlite is

uniform in appearance and delivers perfect visibility and readability day and night.

Scotchlite is made in rolls, is extremely flexible and may be applied in a continuous strip rather than a broken pattern. It can be applied to reflectorize the entire sign, with legend screened or painted on the surface. The various shapes, colors and symbols may be outlined so that they are not lost to the motorist driving at night. Its cost is comparatively low, and being furnished with its own adhesive coating, application is relatively simple.

Scotchlite is made by Minnesota Mining and Manufacturing Company, Saint Paul, Minnesota, who have a world-wide reputation for precision coated abrasive paper and cloth.

If you are attending the meeting of the National Safety Congress, October 7th to 11th at the Stevens Hotel in Chicago, a display and demonstration of Scotchlite signs may be seen at booth number 4.

LONG LIFE

GLO-LITE RELFECTORS

Three years ago in a large eastern city, a Glo-Lite Reflector Stop Sign was installed, in what was called by the traffic engineer "the district where the worst vandalism occurs" . . . The only damage done during this time interval was the breaking of the letter "P", as shown here. However, due to the scatter-proof construction of all Glo-Lite Reflectors, full visibility is assured even though letters may be cracked.

GOTHARD MANUFACTURING CO.
Springfield Illinois

Unretouched snapshot, taken by standard automobile headlight illumination, shows installation of Glo-Lite Stop Sign after three-year test.

SOUTHEASTERN TRAFFIC ENGINEERING CONFERENCE

The First Southeastern Engineering Conference at Clemson College, Clemson, S. C., Sept. 9-12, consisting of a four-day intensive study of traffic engineering will be open to highway and municipal engineers, consulting engineers, educators, enforcement officials, and other safety leaders.

Some of the subjects scheduled for study are uses of accident facts and field studies; national defense; street and highway design; signs, signals and markings; and pedestrian control.

Among the members of the executive committee are: Chairman, J. S. Williamson, chief highway commissioner of South Carolina and president of the American Association of State Highway Officials; Dr. R. F. Poole, president of Clemson College; C. R. McMillan, South Carolina state highway engineer; Harold F. Hammond, director of the traffic division, the National Conservation Bureau; and Wilbur S. Smith, South Carolina state traffic engineer.

Only three conferences of this type have been held in the United States—in Illinois, Minnesota and Massachusetts. These have been successful in providing opportunity for the exchange of ideas, and establishing foundations for effective cooperation by traffic engineers.

LOOKING AHEAD

September 9-12, Clemson, S. C.
Southeastern Traffic Engineering Conference, Clemson College. J. S. Williamson, Chief H'way Commissioner, State H'way Dept., Columbia, S. C.

September 18-19, Portland, Me.
Fourteenth Annual State Safety Conference, Eastland Hotel. W. E. Chase, Jr., director, Industrial Safety Div., Dept. of Labor and Industry, Augusta, Me.

September 22-26, Seattle, Wash.
Seventh Annual Western Safety Conference. J. W A. Bollong (Mem. I.T.E.), city traffic engineer, Seattle, Wash.

September 24-26, New Orleans, La.
Ninth Annual Meeting American Association of Motor Vehicle Administrators, St. Charles Hotel. John J. Nash, secretary-treasurer, American Assoc. of Motor Vehicle Administrators, Washington, D. C.

September 27-Oct. 2, Atlantic City, N. J.
American Transit Association, Haddon Hall. Guy C. Hecker, general secretary, 292 Madison Ave., New York City.

September 29-Oct. 2, Detroit, Mich.
American Association of State Hghway Officials, Statler Hotel. W. C. Markham, secretary-treasurer, 1200 Nat'l Press Bldg., Washington, D. C.

October 5-7, Chcago, Ill.
Twelfth Annual Convention, Institute of Traffic Engineers, Stevens Hotel. Corresponding Secretary, Charles J. Tilden, president and director, Eno Foundation for Highway Traffic Control, Saugatuck, Fairfield County, Conn.

SPEED STUDIES IN MISSOURI

The Safety Bureau of the Missouri State Highway Dept. in a Special Report on speeds of vehicles on two of its routes in August and September, 1940, states in part that the foreign-male-alone operator has the highest average speed of all drivers, that the 18 ft. pavement is more hazardous than the 20 ft., that although the maximum volume of traffic in any one hour was not sufficient to have any effect on average or maximum speed these roadways can carry 300 vehicles per hour without an apparent reduction in speed, that the speed limit to fit 85% of the passenger vehicles would be 62 m.p.h. in daytime and 58 m.p.h. at night and that a 60 m.p.h. daytime speed and a 50 m.p.h. nighttime speed would appear to be reasonable and to fit the present speed habits of drivers on Missouri highways.

During the same period next year, the study will be repeated at each location in order to determine whether there is any increase in average or maximum speeds of the various types of vehicles and drivers, and also to conduct similar studies on other types of roadway, especially the 3 and 4-lane undivided and the dual, or separated, highway.

MINNEAPOLIS LIKES METERS

J. C. Vincent, (Mem. I.T.E.), Traffic Engineer, Minneapolis, Minn., reports in *American City, July 1941*, that everyone is so satisfied with the 1051 parking meters installed in April 1940 that the city plans to use another 400 meters in principal streets in the central business district, where 70 block sides are already equipped. One hour parking is permitted at 75% of the meters and 30-minute parking on two major streets. The fee is 5 cents.

In a parking study of 571 cars in the 30-minute zone 111 parked illegally, and of 1448 cars in the hour zone 180 parked illegally. Enforcement is by squad cars with a civilian driver and a police officer in each. Adjacent streets are parked heavily, requiring additional enforcement. Collections per meter average $11.50 per month or 45 cents per day.

. . . for Better Traffic Control

USE CATAPHOTE REFLECTOR BUTTONS

Traffic handling today is a 24-hour-a-day job for highway signs and markers. Be sure that the signs in your locality are visible both day and night! For low-cost illumination when you need it — use Cataphote Reflector Buttons! Advanced design meets strictest specifications. No moisture condenses... no yellowing with age . . .brilliance guaranteed 3 years. Write concerning your requirements.

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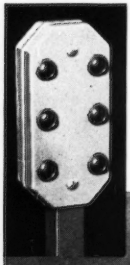


Millions of Cataphotes in use on highway signs of all types everywhere.

*

Unretouched photograph of Pennsylvania Turnpike with Cataphote Niteway Outliner installation.

APPLICATION FOR TRANSFER IN MEMBERSHIP—I.T.E.

Wilbur S. Smith

Traffic Engineer, South Carolina State Highway Department, Columbia, South Carolina. (Home Address) 3100 Heyward, Columbia, South Carolina.

Mr. Smith is now an Associate Member of the I.T.E. and is applying for a higher grade.

Bernard C. Hartung

Assistant Maintenance Engineer in Charge of Traffic, Nevada Department of Highways, Carson City, Nevada.

Mr. Hartung is now a Junior Member and is applying for a higher grade.

Adolphus Mitchell, Sr.

Traffic Engineer, State Highway & Public Works Commission, Raleigh, North Carolina.

Mr. Mitchell is now a Junior and is applying for a higher grade.

NEW MEMBERSHIP APPLICATION I.T.E.

Maynard Clyde Condrey

Junior Traffic Engineer, Department of Public Utilities, City of Cincinnati, Cincinnati, Ohio.

New applicants desiring to have their membership blanks considered for this year, are urged to send their forms promptly to Joseph LaMar Wehmeyer, Chairman, Membership Committee, Institute of Traffic Engineers, c/o Wayne County Road Commission, 3800 Barlum Tower, Detroit, Michigan. The time is growing short before the next meeting of the Board of Direction, which will be held in conjunction with the I.T.E. Annual Convention at Chicago in October.

NEW SIGN COMBINATION

Ray F. Reigelmeir (Mem. I.T.E.), *American City, June 1941,* suggests placing an additional sign reading *Right Turn Keep Moving* beneath a *STOP* sign to facilitate a heavy right turn movement on streets 30 feet or more in width.

To enable the motorist to comply with the new signs he recommends the following considerations:

Strict enforcement of STOP signs. Use reflectorized signs for night visibility. Paint traffic lane lines, center lines and STOP lines on the streets. Paint the word messages for RIGHT TURNS and STOP with elongated letters. Eliminate parking in the immediate area, so that it will not interfere with the free operation of traffic movements by erecting the appropriate NO PARKING signs, and by painting the curb as a NO PARKING ZONE. Publicize the special operation of the intersection through the local newspapers, motor clubs, and other interested agencies.

A WORD TO THE WISE

Reyburn Hoffman (Mem. I.T.E.), Secretary-Manager, St. Louis Safety Council, offers an article on training women drivers in the May, 1941 issue of Public Safety.

He gives a brief discussion of the advantages derived from competent driving instruction. There is also a description of the course which includes lectures, written examinations, and driving contests. All women who successfully pass receive certificates and those scoring 90 or over are given prizes.

BRITAIN'S TRAFFIC EXPERIENCES UNDER WAR CONDITIONS

Great Britain has a public highway system of 180,000 miles, including rural highways and city streets. Because the construction, maintenance and operation of this system is the responsibility of over 13,000 separate agencies there is a serious lack of uniformity as to location, construction and maintenance standards.

There has been no attempt to create a marking system similar to our own federally-numbered system, and before the war there was a serious lack of directional signs.

"Travel by motor vehicle is further complicated at present by the rationing of gasoline. The average automobile owner in England today can secure enough gasoline to operate his car a distance of about 150 miles per month, irrespective of whether a car operates on 15 miles per gallon or on 40 miles per gallon. In anticipation of the probable shortage of gasoline under wartime conditions, the British government has offered a sort of prize or subsidy to operators who will use in all or part of their vehicles some kind of locally manufactured substitute for gasoline.

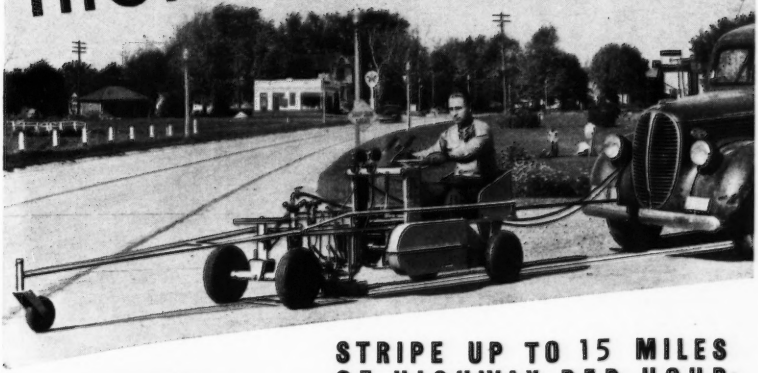
"Prior to the war the motor-vehicle registration was about one for each 23 persons, or a total of about 2,000,000. At present this registration has dropped to 1,215,000 due to rationing of gasoline, turning over vehicles to the military, lack of spare parts and production . . . It is interesting to note, however, that a few short-period traffic counts indicate that, even with the reduced registration, at peak hours the traffic density is almost as great on certain arterials as it was prior to the war. The peak periods are shorter and can perhaps be accounted for by the rush of traffic attempting to reach its destination before blackout time.

"The control of traffic in the metropolitan areas is still accomplished by the usual method of police direction and traffic signals. However, it has been found necessary under blackout conditions to restrict the red, green and amber lights by covering the lens with opaque paint. The only light that is permitted to penetrate the lens is that through a horizontal and a vertical line extending in both directions across the entire surface. The width of these lines is about one-quarter of an inch and when the lights are operated at night it gives the appearance of a red, green or amber cross of the dimensions above indicated . . . The accident rate has materially increased since war was declared. This increase can quite properly be traced to the increase in fast-moving military traffic and to the blackout."

The Minister of Transport has laid out a system of strategic "red" and tactical "blue" highways of 13,800 miles somewhat similar to our own strategic highway system; but due to the urgency of their present situation, the British system has been somewhat further advanced in some respects than ours. At any time the military authorities can take full control of this system, including policing, and can exclude it from all forms of civilian traffic. Provision has been made, however, for the issuance of windshield stickers (which have already been printed) to certain types of emergency vehicles such as ambulances, fire trucks and cars belonging to civilian medical personnel.

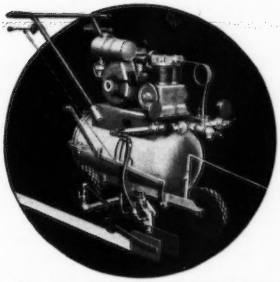
"In the areas that are considered to be most vulnerable in an attempted invasion, a carefully worked out scheme for the movement of civilians now residing in those areas has been completed. This plan provides for the evacuation of civilians over roads not forming a part of the strategic or tactical systems. In all instances where it may be necessary for the civilian

Speed up HIGHWAY MARKING



STRIPE UP TO 15 MILES OF HIGHWAY PER HOUR

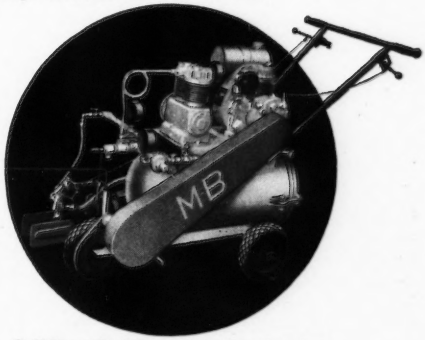
The M-B Automatic Marker (shown above) can handle EVERY type of traffic line marking job. Stripes center lines and "no passing" lines—single, double or triple—solid or intermittent—one color or two colors—in any desired combination—and it does the job accurately and safely. Assures uniform, clean-cut lines. No "mist." Saves 15% to 20% of material, compared to other methods of marking. Write for Bulletin No. 113.



Standard M-B Hand-Propelled Street Marker

STREET MARKERS

Compact, versatile machines for all types of traffic striping jobs: Center lines, parking areas, cross walks, safety zones, etc. Can also mark athletic fields, airports, tennis courts, playgrounds, etc. Quickly convertible to all-purpose paint sprayer. Easy, one man operation. Write for Bulletin No. 112.



Self-Propelled Street Marker that lays down traffic lines up to 15,000 feet per hour.

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traffic to cross either the red or blue network, the points at which the military will be interrupted in order to permit this movement have been determined.

"In anticipation of probable bomb damage to the strategic and tactical systems, the Ministry of Transport has purchased and stored at intervals of 10 to 15 miles supplies of materials necessary for quick and adequate repairs. They have also stored at important points standard prefabricated temporary bridges."

Studies have been made for blocking roads with obstructions, and highways and bridges have been mined at strategic points.

"In general, it can be said that railways are much more vulnerable to damage and delay caused by aerial bombardment than are highways.

"A number of both highway and railway bridges have received direct hits. Investigation of a number of these bridges would indicate that in most instances the bomb passed completely through the deck and generally exploded in the water or mud beneath, resulting in very little damage.

"Damage to rural highways usually causes very little delay. The craters are either quickly filled or a suitable detour is provided.

"An entirely different problem is presented in the bombing of city streets. Beneath the streets, as in our own country, there is a great number of water mains and laterals, sewers, gas mains, electric and telephone conduits. A direct hit on the street results in much more damage than the actual damage to the street surface."

Col. Murrow recommends an inventory of all motor vehicles and construction equipment, and particular attention be given to traffic bottlenecks.

Close cooperation is urged between military authorities, road-builders and traffic management agencies to expedite troop movements and provide freer channels for defense industry's products.

"For a number of years Britain has been expending only about 35 percent of the taxes levied and collected for highway purposes on the highway system. The balance of this revenue has been diverted for purposes of schools, old age pensions, and other items." The funds spent on highways have been spent primarily on strengthening and improving the existing roads which are narrow, crooked, and in many instances have excessive grades. At present there is a serious lack of road-building and maintenance equipment.

The foregoing are excerpts from a report by Lt. Col. L. V. Murrow to the Public Roads Administration and the Roads Committee of the Senate as printed in Engineering News-Record, June 1941.

Lt. Col. Murrow, director of highways for the State of Washington, now on leave of absence for service in the Air Corps, was sent to England by the Federal Works Agency to study highway and railway conditions there under war conditions.

Editor's Note: The British highway pattern rests in one central focal point at London. Its distribution system operates somewhat similar to the daily ebb and flow of traffic into and out of our own large metropolitan centers. Its radial character is the result of many factors chief among which are geographical location in relation to parts, physiographic character of the country, early trade relations and railroad development. The decentralizing influence of automotive movement upon Britain's distribution activity has hardly been felt. Official and financial interests failed to recognize the advantages of an adequate highway system supplementing rail and coastwise carrier systems.

It is only natural that any condition which damages or blockades the hub

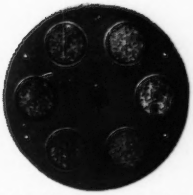
ELECTRIC SIGNALS

Standard signals adapted for all types of mounting. Synchronous and induction control mechanisms and accessory devices.

REFLECTOR SIGNALS

When signs are not enough or expense is a factor, reflector signals keep down both cost and accident rate.

8"; Six 1¾" Stimsonites



15"; Six 3" Stimsonites

REFLECTOR SIGNS

Large Stimsonized and standard reflector button signs for all traffic conditions.

72" SIGN
18" LETTERS

24" SIGN
6" LETTERS

DELINEATORS

Reflector Delineation gives essential road information after dark at daylight distances. The alignment and driving limits of the road are outlined by a channel of light.

SIGNAL SERVICE CORPORATION

SS SIGNALS

ELIZABETH, N. J.

of a centralized circulation system partially nullifies the function of the terminal and disrupts the system. Had Britain possessed a highway system commensurate with her needs prior to the war she not only would have been stronger economically at the beginning of the war but also would now be in a better position to ease the effects of bombing, blockading and potential blitzing.

ACCOMPLISHMENT!

A. R. Forster, director of training at Northwestern University Traffic Institute, and K. R. Dickinson, field representative of the I.A.C.P. Safety Division, recently prepared a joint report for the War Department analyzing military traffic problems and setting forth recommendations dealing with control procedures.

In expressing the War Department's appreciation for this "important contribution to national defense," General George C. Marshall, Chief of Staff, in his letter to Lieut. F. M. Kremel (Affil. I.T.E.), director of Northwestern Traffic Institute, wrote: "Examination of the report to the War Department entitled 'Military Traffic Control,' submitted jointly by the International Association of Chiefs of Police, Safety Division, and Northwestern University Traffic Institute, reveals it to be a document which will be of value to the War Department as a basis of study pertaining to doctrine, procedure, organization and training for the important function of traffic control. The usefulness of the report is enhanced by its clear statement and direct attack of the problems, and its logical progression in each case to clear-cut conclusions. The document indicates throughout that the individuals who made the survey and prepared the report possessed a clear perspective of traffic control from the viewpoint of military operations which could have been gained only by arduous and painstaking effort.

"I wish to commend you for the part you played in the execution of this project and to express the appreciation of the War Department for the generous spirit of cooperation displayed in executing this task. In view of the recognized importance of proper control of traffic to any operations in which our Army may become engaged, you have made an important contribution to National Defense."

CINCINNATI SPOTS SPEEDS

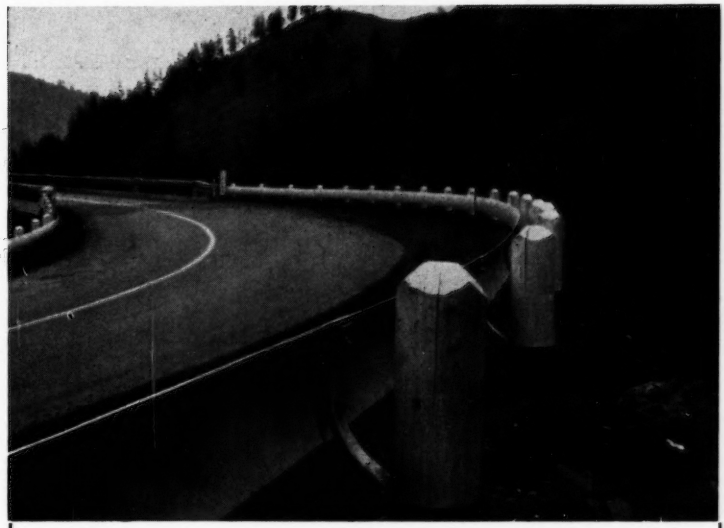
Cincinnati police claim that spot speed studies cut traffic fatalities and produce fewer accidents. Speed zones 113 ft. long have been marked off by two broad white lines across streets, usually near intersections. Two officers are assigned to each zone equipped with a stop watch having a ten-second face for timing the vehicles over the measured distance, a speed table calibrated for speeds ranging from 20-75 m.p.h., and a motor cycle for apprehending the speeder. Elapsed time over the distance is matched with the speed shown on the table. Speeds are calculated on the basis of 110 ft. instead of 113 ft. to allow for timing errors and to give the motorist the benefit of 3 ft. Approximately 95% of the speeders arrested by this system plead guilty in court.

"RURURBAN" CHANGES IN ENGLAND

Professor Nevins, professor of history at Columbia and Oxford Universities and Pulitzer Prize winner in 1932 and 1937 observes from his recent visit to Great Britain that the landscape has improved from wartime changes, for as contracts for outdoor advertising have lapsed and billboards and signs have been taken down, rural England of pre-automobile days is emerging.

He adds that there have been great shifts in population from the large cities, possibly two million from Lon-

TUTHILL HIGHWAY GUARD RAIL



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Write for Descriptive Circular

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Western Distributors and Mfrs.

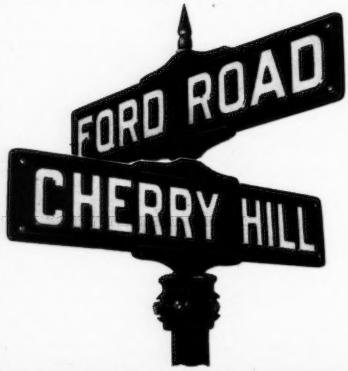
don alone, causing painful congestion within the smaller communities, but bringing a raised level of health, social, cultural and economic conditions, which will be encouraged after the war by further decentralization.

AUTO OUTPUT

National Week of July 25, 1941 reports that the automobile industry is scheduled for a drastic slash in output because it is the biggest competitor of the defense industry for raw materials and the defense program needs the industry's skilled workmen and competent managers.

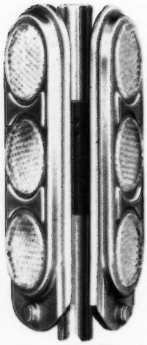
The auto industry already has approximately $2,000,000,000 worth of defense contracts and has been promised three times this amount. This exceeds the industry's 1940 output—estimated at $3,185,000,000.

During the 1941 model year 5,310,000 vehicles were produced, an increase of 30% over 1940. In this coming year possibly not more than 3,000,000 vehicles will be manufactured. A reduced output will mean that auto companies must charge each vehicle with a greater proportion of overhead costs, and prices for used cars are likely to increase. The industry estimates that 6,000,000 of the 31,000,000 registered vehicles are over 10 years old and are ready for the junk heap. There are, however, scarcely enough 1941 and 1942 models to replace them. This situation will keep many old cars on the road and will probably bring additional headaches for the country's safety officials.

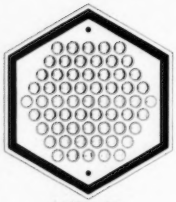


NEW IMPROVED DESIGN . . .

EMBOSSED LETTERS WITH COUNTER-EMBOSSED BEAD—RUGGED—LEGIBLE
WITHIN YOUR BUDGET
FURNISHED WITH 5" or 6" PLATES



Swivel type Fireball Delineator offers easy alignment, maximum reflecting efficiency at minimum cost



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3¾ x 9⅝
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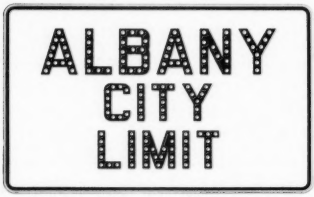

Embossed Reflectorized Entrance Signs extend friendly welcome to visitors and new business

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REFLECTING BUTTONS, SIGNS & SIGNALS
MANUFACTURED BY
THE NATIONAL COLORTYPE CO., INC.
BELLEVUE, KY.

DO YOU KNOW?

In the case of Neu v. McCarthy, the Mass. Supreme Court observes that military convoys must obey traffic signals in time of peace where there is no military necessity, obvious or demonstrated.

The Supreme Court of Nebraska in the case of Nelson v. Tilly fixed the status of motor vehicles as a necessity.

Governor Murray D. Van Wagoner of Michigan recently signed a bill authorizing condemnation of land for limited-access highways.

Pennsylvania has authorized the extension of the Penn. Turnpike to the Ohio state line.

A Highway Toll Authority has been set up for Chicago and Cook County with the power to issue bonds for financing the highways.

Approximately 1½ million vehicles carrying 3¼ million passengers paid about ½ million dollars to cross Lake Washington's pontoon bridge at Seattle during its first year of operation.

Indiana began installation of overhead speed signs when studies revealed that signs on shoulders were often hidden from motorists on inside lanes by cars on the outside lanes.

Texas and South Dakota are successfully experimenting with contrasting stone chips to improve the visibility and durability of lane markings.

Coral Gables, Fla., has a new type of stop sign designed by City Manager A. B. Curry. This sign has the raised gold letters STOP set on a blue background which rests on a solid concrete base placed in a grassed area inside the curb. The concrete base is 32" long by 12¾" deep, 6¾" high in front and 13" high in the rear. The raised letters are set at an angle, being 4½" high in the rear and 1" high in the front. Write Manager Curry for further particulars. It is not patented.

When enforcement of all-night no parking failed due to lack of garage accommodations in the residential areas, Gary, Ind., decided to allow parking on one side of the street at night. Now the parkers must be up on their dates for cars are parked on the side of the street where the houses have odd numbers on odd nights of the month and on the other side when the dates are even.

When the Regional Plan Assoc. of New York City looked into the parking situation they found that the most frequent long-time parkers and the most violent objectors to parking congestion were the same—the business men!

The first concrete pavement, planned and constructed by J. A. Bartholomew, was laid down in Bellefontaine, Ohio, 50 years ago (1891) and the first traffic rotor was designed by William Phelps Eno (Hon. I.T.E.) for Columbus Circle, New York City, in 1905.

Ralph Budd, Transportation Commissioner, Office of Emergency Management, has recently created a Central Motor Truck Transportation Committee with 16 regional committees to advise on motor truck problems, formulate and execute plans for efficient use of highways and to assure sufficiency of motor truck equipment for national defense needs. In September they are to begin an inventory which includes the location, use and routing of all trucks.

The *Public Works Reserve* has been set up within the Federal Works Agency to collect post-defense public works projects which can be used as part of a future federal program.

The Employment Stabilization Act of 1931 is before Congress for amendment to loan money for conducting comprehensive engineering and plan-

ning surveys to facilitate and expedite the selection and inauguration of post-defense public improvements.

Many cities are programming their public works on a long-term planning basis which is revised annually to meet changing needs. This method develops a "reservoir" of advisable public works projects most valuable when defense slows down and employment-creating projects are needed.

Col. Homer Garrison, Jr., director of the Texas State Department of Public Safety reports that during the first 4 months of this year 47 persons were killed and 358 were injured in accidents involving soldiers as drivers, passengers or pedestrians, and that the damage to vehicles amounted to $65,-271. State Police are now working with Military Officials toward a solution. At Camp Bowie cars are inspected before making trips, number of passengers limited and no trip over 300 miles is allowed on a 72 hour or less leave.

Norman Damon (Affil. I.T.E.), executive director of the Automotive Safety Foundation, was one of the judges in the International Association of Chiefs of Police membership drive launched to unite all police agencies for handling the many new duties resulting from national defense. The I.A.C.P. is having its 48th Annual Conference at the Hotel Statler, Buffalo, August 18-21.

Kansas has doubled its playground facilities this summer by using tax delinquent lands taken over by the city, asking permisison from owners of vacant land for use of it as play centers, etc. This should aid in the child safety program.

Michigan legislature has authorized the acquistion and construction of trailer camps near industries where housing shortages exist.

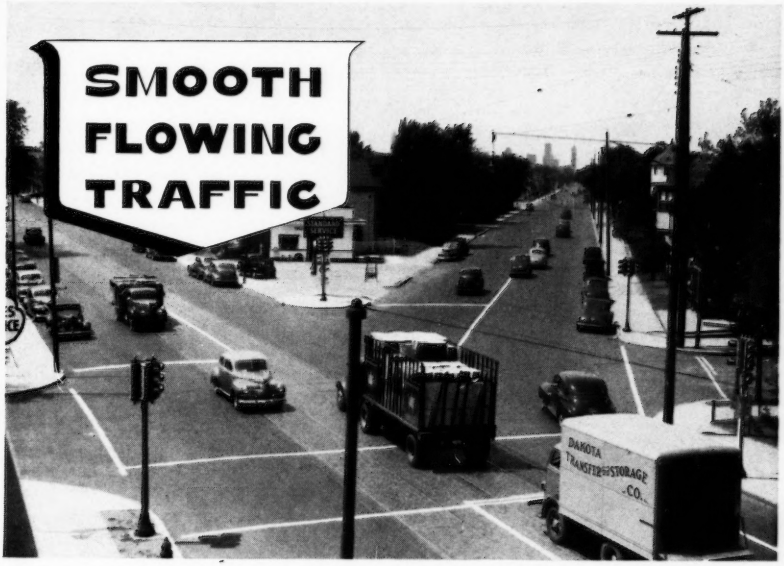
ON THE SHELF

PLANNING THE INTERREGIONAL HIGHWAY SYSTEM, by H. E. Hilts, Asst. Chief, Div. of H'way Transport, U.S.P.R.A., in PUBLIC ROADS, Vol. 22:4, June 1941, pp 69-97. A discussion of tentative plans, design standards, costs and needs of the system.

PUBLIC AIDS TO TRANSPORTATION; a report in four volumes presented by Hon. Joseph B. Eastman, former Federal Coordinator of Transportation, and prepared by Charles S. Morgan, former director of the Coordinator's Section of Research and others. Published by U. S. Government Printing Office, Washington, D. C., price $2.40 per set. Vol. IV, Public Aids to Motor Vehicle Transportation, is an analysis of highway and street costs and motor vehicle user payments. It covers the development of highway facilities, methods of financing, principles governing allocation of costs of highways and streets, relative use of road systems by different types of vehicles, and many other interesting matters directly and indirectly related to traffic administration.

HORSE AND BUGGY JUSTICE; condensed from a report published by the National Committee on Traffic Law Enforcement. Copies free upon request from I.A.C.P. Safety Division, 1827 Orrington Ave., Evanston, Ill. This paper deals with traffic court procedures and lists 57 recommendations necessary to bring traffic courts into gear with modern requirements.

ROAD AND STREET CONSTRUCTION METHODS AND COSTS, by H. P. Gillette and J. C. Black, Gillette Publishing Company, 330 South Wells St., Chicago, Ill., 1940, 607 pages, $6.00.



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RECOMMENDED PRACTICE OF STREET LIGHTING; 1940, by the Committee on Street and Highway Lighting of the Illuminating Engineering Society, 51 Madison Ave., New York City, price 15c. The publication furnishes the technical basis upon which effective street lighting may be designed.

ACCIDENT FACTS, 1941; published by the National Safety Council, 20 North Wacker Drive, Chicago, Ill. This publication contains accident statistics for the previous years and comparison with earlier years.

PROGRESS IN SAFETY EDUCATION RESEARCH; published by Center for Safety Education, New York Univ., 20 Washington Sq. north, New York City. A five-page description of the forty-four research studies offered for higher degree by the students, fellows and staff of the Center.

FARES, PLEASE!—FROM HORSE-CARS TO STREAMLINERS; by John Anderson Miller, Editor, Transit Journal, D. Appleton-Century Co., New York City, 204 pages illus. A fascinating book describing the romantic evolution of the transit systems from the days of horse-cars to the modern subway. $3.50 from American City, 470-4th Ave., N. Y. C.

THE SUSPENSION AND REVOCATION OF DRIVERS LICENSES; by T. Elmer Transeau, (Mem. I.T.E.), Director, Bureau of Highway Safety, Commonwealth of Pennsylvania, Harrisburg, Pa., 15 pages, mimeo. Free.

AUTOMOBILING; by Burton W. Marsh, (Mem. I.T.E.), Director, Safety and Traffic Engineering Dept., American Automobile Assoc., published by Boy Scouts of America, 2 Park Ave., New York City, 91 pages. A handbook written primarily for Boy Scouts but excellent for any new driver.